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EXAMINER	
BELL, MELTIN	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/874,552	JACKSON ET AL.	
	Examiner	Art Unit	
	Meltin Bell	2121	

-- Th MAILING DATE of this communication appears on th cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 June 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

This action is responsive to application **09/874,552** filed **06/04/01**.

Claims 1-44 have been examined.

Information Disclosure Statement

Applicant is respectfully reminded of the ongoing Duty to disclose 37 C.F.R. 1.56 all pertinent information and material pertaining to the patentability of applicant's claimed invention, by submitting in a timely manner PTO-1449, Information Disclosure Statement (IDS) with the filing of applicant's application or thereafter.

The information disclosure statement filed 6/4/01 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because of missing or inaccurate information in the listing:

- The Allen et al reference is missing the year and month of publication.

It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Drawings

The United States Patent and Trademark Office of Draftsperson's Patent Drawings Review have reviewed the formal drawings. They are objected to by the Draftsperson under 37 CFR 1.84 or 1.152 for the reasons indicated on the Form PTO-948, Notice of Draftsperson's Patent Drawing Review.

The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is required in correcting any errors of which applicant may become aware in the drawings.

The drawings are objected to because:

- FIG. 4 is missing the item number for solver model 490 given on line 2 of page 20.
- FIG. 5 doesn't show the 'resulting behavior △ B' on line 23 of page 21.
- STEP should be removed from FIG 6 items 620, 630 and 650.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is required in correcting any errors of which applicant may become aware in the specification.

The disclosure is objected to because of the following informalities:

- U.S. Patent Number 5,871,731 on lines 14-17 of page 1 is not listed or given in the 6/4/01 IDS as is 5,870,731 on line 23 of page 5.
- The word 'code' is used when referring to Figure components/items beginning on line 26 of page 19 and should be removed.
- 'solver model code 490' should be replaced by 'complexity module 410' for providing 'B_e along path 415 to comparison unit 445' as suggested on lines 22-23 of page 20.
- 590 should be 510 on line 1 of page 21.
- Partial step 630 should be partial search step 630 on line 1 of page 24.
- References to Nelder-Mea? functions should be supported with IDS document(s):
    - ?=d:
        - Algorithm on line 14 of page 26
        - Solver on line 16 of page 25
        - Search technique on line 10 of page 21
    - ?=n:
        - search method on line 19 of page 28.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The invention as disclosed in claims 34, 35 and 44 are directed to non-statutory subject matter. Claims 34, 35 and 44 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a credible asserted utility or a well established utility.

As a problem solver stored via a storage media comprising three data formats and twelve pluralities of binary values, claim 44 offers only descriptive material that is non-functional. The body of the claim is composed of values and formats that the preamble suggests have an intended use. However, there is nothing enabling in the claim, such as a claimed computer, allowing the problem solver to execute. As written, claim 44 can be represented as data on a CD or other media that isn't used until read by a computer.

As a method and problem solvers, claims 34, 35 and 44 offer abstract ideas (e.g. "statement", "parameters", "vectors", "points") that are also not applied in the technological arts. Abstract ideas and their manipulation constitute "descriptive material" that is not patentable, *Warmerdam*, 33 F.3d at 1360, 31 USPQ2d at 1759 and *Schrader*, 22 F.3d at 292-93, 30 USPQ2d at 1457-58, respectively. If the abstract ideas of claims 34, 35 and 44 represented functional descriptive material consisting of data structures and computer programs which impart functionality when employed as a computer component (recorded on some computer readable medium), they become structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. For examples,

- *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) offers claim to data structure stored on a computer readable medium that increases computer efficiency held statutory and
- *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 offers product-by-process claim to computer having a specific data structure stored in memory also held statutory while
- *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 offers claim to a data structure *per se* held nonstatutory.

Because the claims are not claimed to be practiced on a computer and/or stored on a computer readable medium, they are not limited to practical applications in the technological arts. Specifically, the claims are a problem solver and methods without any particular practical application, such as a program running on a computer and stored in a computer readable medium or memory. On that basis alone, those claims are clearly nonstatutory.

Claims 34, 35 and 44 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a credible asserted utility or a well established utility. Claims 34, 35 and 44 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a credible asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claim Rejections - 35 USC § 112

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 34, 35 and 44 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Support for this 35 U.S.C. 112, first paragraph rejections comes from MPEP 2164.07(l)(A):

"As noted in *In re Fouche*, 439 F.2d 1237, 169 USPQ 429 (CCPA 1971), if "compositions are in fact useless, appellant's specification cannot have taught how to use them." 439 F.2d at 1243, 169 USPQ at 434. The examiner should make both rejections (i.e., a rejection under 35 U.S.C. 112, first paragraph and a rejection under 35 U.S.C. 101) where the subject matter of a claim has been shown to be nonuseful or inoperative.
The 35 U.S.C. 112, first paragraph, rejection should indicate that because the invention as claimed does not have utility, a person skilled in the art would not be able to use the invention as claimed, and as such, the claim is defective under 35 U.S.C. 112, first paragraph."

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3, 18, 30, 37-40 and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "said configuration parameters" in line 6-7. There is insufficient antecedent basis for this limitation in the claim.

Claim 3 recites the limitation "solving model" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 18 recites the limitation "control computer" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 30 recites the limitation "control computer" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 37 recites the limitation "control parameters" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 37 recites the limitation "adaptive constraint" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 38 recites the limitation " adaptive constraint" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 39 recites the limitation " adaptive constraint" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 40 recites the limitation " adaptive constraint" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 42 recites the limitation " adaptive constraint" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-17, 22-29, 34-41 and 43 are rejected under 35 U.S.C. 102(e) as being anticipated by *Gounares et al* U.S. Patent Number 6,088,690 (July 11, 2000).

Regarding claim 1:

Gounares et al teach,

- receiving a problem statement from the applications module (FIGS. 1, 25; column 2, lines 54-60, "The above identified...population of organisms")

- determining an expected problem solver behavior associated with said configuration parameters for said problem statement (column 2, lines 62-67, "the population of...by the user")

- providing the solving module with configuration parameters (column 5, lines 1-7, "The software testing...the target system"; column 12, lines 58-60, "The system of...application of mutagens"; column 25, lines 46-64, "The operation of...system for operation"; column 26, lines 5-28, "genetic testing engine...system under test")

- selecting a set of configuration parameter vectors (FIGS. 17-18; column 10, lines 23-30, "A property delta...system under test"; TABLE 3)

- determining a set of search space points (column 8, lines 17-35, "The present invention...by product drivers")

- perform a partial search with said configuration parameter vectors (column 18, lines 26-45, "Step 1005 and...to step 1007")

- determining actual solver behavior (column 23, lines 55-60, "the software testing...target software system")

- reviewing said actual solver behavior to determine if a problem solution has been found (FIG. 22)

determining whether to perform a solver iteration step or to request the complexity module to perform an adaptation step if a problem solution has not been found (FIGS. 10, 21)

performing a said solver iteration step when said solver iteration step is selected, comprising the steps of determining new actual solver behavior and determining whether to repeat said solver iteration step (FIG. 4; column 4, lines 18-30, "Pairs of chromosomes...of test cases")

- repeating said solver iteration step until said adaptation step is selected (column 14, lines 33-51, "FIG. 22 illustrates...to step 2208")

- comparing said actual solver behavior with said expected solver behavior when said adaptation step is selected (column 11, lines 8-24, "Whenever a chromosome ... additional notational conveniences")

- requesting the complexity module to perform said adaptation step (column 2, lines 13-51, "Given that there...target software systems"; column 22, lines 20-48, "These four actions...complex test cases")

- performing said adaptation step, comprising the steps of modifying said configuration parameters within the complexity module, configuring the solving module with said modified configuration parameters, determining expected solver behavior associated with said modified configuration parameters for said problem statement, selecting an algorithm to calculate a revised problem solution, determining a revised actual solver behavior associated with said modified configuration parameters for said problem statement, reviewing said revised actual solver behavior to determine if a problem

solution has been found, determining whether to perform said solver iteration step or to request the complexity module to perform another adaptation step if a problem solution has not been found, and repeating said iteration step until said adaptation step is selected (FIG. 6, 8, 15)

- repeating said adaptation step until a problem solution is found (column 20, lines 1-20, "A process of...to step 2105")

- providing the solution to the applications module (FIG. 23)

Regarding claim 2:

Gounares et al further teach,

- the step of selecting an algorithm to calculate an initial problem solution (column 4, lines 1-7, "the genetic testing...properties are measured")

Regarding claim 3:

Gounares et al further teach,

- the step of refining the configuration parameters provided to said solving model (column 4, lines 18-30, "Pairs of chromosomes...or test cases")

Regarding claim 4:

Gounares et al further teach,

- an adaptive constraint problem solver (column 11, lines 42-67, "A further type...the target system")

Regarding claim 5:

Gounares et al further teach,

- the step of transforming said problem statement after receiving said problem statement from the applications module (FIG. 4)

Regarding claim 6:

Gounares et al further teach,

- the step of transforming said problem solution before providing said problem solution to the applications module (FIG. 8)

Regarding claim 7:

The rejection of claim 1 is incorporated. Therefore, claim 7 is rejected under the same rationale as claim 1.

Regarding claim 8:

The rejection of claim 7 is incorporated. Therefore, claim 8 is rejected under the same rationale as claim 7.

Regarding claim 9:

Gounares et al further teach,

- choosing a set of default configuration parameter vectors (column 10, lines 20-30, "There are several...system under test")

- selecting an initial minimum point (column 10, TABLE 3, Before a_1)

- performing a local search (column 4, lines 1-17, "In general, the...high fitness rating")

- evaluating actual behavior to determine whether to repeat a local search or select a different solver algorithm (FIG. 22)

- repeating a local search with a second minimum point when the step of repeating a local search is selected (column 20, lines 1-20, "A process of...to step 2105")

- revising the set of configuration parameter vectors for each search performed (column 4, lines 18-30, "Pairs of chromosomes...or test cases")

Regarding claim 10:

Gounares et al further teach,

- an input device for providing the problem statement (FIG. 25: items 2540, 2542, 2549)

- a computer coupled to the output of said input device (FIG. 25: items 2520, 2521)

- a memory portion coupled to the computer comprising (FIG. 25: item 2522):

- software for receiving the problem statement from said input device (item 2526)

- software for determining solver configuration parameter vectors (item 2535)

- software for configuring a problem solver (item 2536)

- software for determining expected solver behavior (item 2537)

- software for performing a partial search with said configuration parameter vectors (item 2555)

- software for determining actual solver behavior and determining whether a solution has been found (item 2527)

- software for determining whether to perform a solver iteration step or to perform an adaptation step (item 2550)

- software for performing an adaptation step, comprising modifying said configuration parameters and reconfiguring said problem solver (item 2524)

- output means for providing a solution statement (items 2547, 2549)

Regarding claim 11:

Gounares et al further teach,

- an adaptive constraint problem solver (column 11, lines 42-67, "A further type...the target system")

Regarding claim 12:

Gounares et al further teach,

- software including a learning module for refining said expected problem solver behavior (column 22, lines 20-32, "These four actions...efficient tests cases")

Regarding claim 13:

Gounares et al further teach,

- a problem transformer module for transforming said problem statement after receiving said problem statement from said input device (FIG. 4)

Regarding claim 14:

Gounares et al further teach,

- a problem transformer module for transforming said problem statement before providing said problem solution to said output device (FIG. 8)

Regarding claim 15:

The rejection of claim 10 is incorporated. Therefore, claim 15 is rejected under the same rationale as claim 10.

Regarding claim 16:

The rejection of claim 15 is incorporated. Therefore, claim 16 is rejected under the same rationale as claim 15.

Regarding claim 17:

Gounares et al further teach,

- a data structure, said data structure containing configuration parameters and expected behaviors for a plurality of problem types (column 6, lines 50-67, "program modules include...2521, a system"; column 7, lines 1-34, "memory 2522, and...exemplary operating environment")

Regarding claim 22:

Gounares et al further teach,

- an input device for providing the primary goal for the task to be performed (FIG. 25: items 2540, 2542, 2549)

- a computer coupled to the output of said input device (FIG. 25: item 2520)

- a memory portion coupled to said computer comprising (FIG. 25):

- a complexity module for configuring a problem statement and determining expected solver behavior (FIG. 4)

- a controllable solving module coupled to said complexity module for determining actual solver behavior (FIG. 6)

- a synthesis module for determining configuration parameter vectors (FIG. 8)

- comparison means for comparing said actual solver behavior with said expected solver behavior (items 404, 418, 1003, 1006, 1500, 2108, 2202, 2207, 2521)

- output means for providing a statement of the problem solution (items 2547, 2549)

Regarding claim 23:

Gounares et al further teach,

- an adaptive constraint problem solver (column 11, lines 42-67, "A further type...the target system")

Regarding claim 24:

Gounares et al further teach,

- a learning module (column 22, lines 20-32, "These four actions...efficient tests cases")

Regarding claim 25:

Gounares et al further teach,

- a problem transformer module for transforming said problem statement after receiving said problem statement from said input device (FIG. 4)

Regarding claim 26:

Gounares et al further teach,

- a problem transformer module for transforming said problem solution before providing said problem solution to said output means (FIG. 8)

Regarding claim 27:

The rejection of claim 22 is incorporated. Therefore, claim 27 is rejected under the same rationale as claim 22.

Regarding claim 28:

The rejection of claim 27 is incorporated. Therefore, claim 28 is rejected under the same rationale as claim 27.

Regarding claim 29:

Gounares et al further teach,

- said complexity module comprises a data structure, said data structure containing configuration parameters and expected behaviors for a plurality of problem types (column 6, lines 50-67, "program modules include...2521, a system"; column 7, lines 1-34, "memory 2522, and...exemplary operating environment")

Regarding claim 34:

Gounares et al further teach,

- means for receiving a problem statement (FIG. 25: item 2540)

- means for determining expected solver behavior associated with said problem statement (FIG. 25: item 2520)

- means for providing configuration parameters for a plurality of problems (FIG. 25: item 2549)

- means for determining a set of configuration parameter vectors (FIG. 25: item 2542)

- means for performing a partial search with said configuration parameter vectors (column 18, lines 26-45, "Step 1005 and...to step 1007"; FIG. 9)

- means for calculating actual solver behavior (column 23, lines 55-60, "the software testing...target software system"; FIG. 4)

- means for reviewing said actual solver behavior to determine if a problem solution has been found (FIGS. 15, 22)

- means for determining whether to perform a solver iteration step or to request an adaptation step if a problem solution has not been found (FIGS. 10, 21)

- means for performing a solver iteration step, comprising performing another search step, calculating a revised actual solver behavior and determining whether to repeat said solver iteration step (column 4, lines 18-30, "Pairs of chromosomes...of test cases")

- means for comparing said actual solver behavior with said expected solver behavior (column 11, lines 8-24, "Whenever a chromosome...additional notational conveniences")

- means for requesting performance of an adaptation step (column 2, lines 13-51, "Given that there...target software systems"; column 22, lines 20-48, "These four actions...complex test cases")

- means for performing an adaptation step, comprising modifying said configuration parameters, determining a revised expected problem solver behavior, and providing said modified configuration parameters and said revised expected problem solver behavior to said means for performing a solver iteration step (FIG. 6, 8, 15)

- means for providing the problem solution to an output device (items 2547, 2549)

Regarding claim 35:

Gounares et al further teach,

- receiving a problem statement (FIGS. 1, 25; column 2, lines 54-60, "The above identified...population of organisms")

- configuring a problem solver with configuration parameters (column 5, lines 1-7, "The software testing...the target system"; column 12, lines 58-60, "The system

of...application of mutagens"; column 25, lines 46-64, "The operation of...system for operation"; column 26, lines 5-28, "genetic testing engine...system under test")

- determining a set of configuration parameter vectors (column 8, lines 17-35, "The present invention...by product drivers"; column 18, lines 26-45, "Step 1005 and...to step 1007")

- determining expected solver behavior associated with said configuration parameters for said problem statement (column 2, lines 62-67, "the population of...by the user")

- searching for a solution with said configuration parameter vectors (column 18, lines 26-45, "Step 1005 and...to step 1007")

- determining actual solver behavior (column 23, lines 55-60, "the software testing...target software system")

- determining if a problem solution has been found (FIG. 22)

- determining whether to perform a solving iteration step or an adaptation step if a problem solution has not been found (FIGS. 10, 21)

- performing said solver iteration step, when said solver iteration step is selected, comprising the steps of determining a new actual solver behavior and determining whether to repeat said iteration step (FIG. 4; column 4, lines 18-30, "Pairs of chromosomes...of test cases")

- repeating said solver iteration step until said adaptation step is selected (column 14, lines 33-51, "FIG. 22 illustrates...to step 2208")

- comparing said actual solver behavior with said expected solver behavior when said adaptation step is selected (column 11, lines 8-24, "Whenever a chromosome ... additional notational conveniences")

- performing said adaptation step, comprising the steps of modifying said configuration parameters, determining expected solver behavior associated with said modified configuration parameters, determining a revised actual solver behavior, reviewing said revised actual solver behavior to determine if a problem solution has been found, determining whether to perform said solver iteration step or to perform another adaptation step if a problem solution has not been found, and repeating said iteration step until said adaptation step is selected (FIG. 6, 8, 15)

- repeating said adaptation step until a problem solution is found (column 20, lines 1-20, "A process of...to step 2105")

- transmitting a solution statement (FIGS. 23, 25: items 2553, 2554, 2548)

Regarding claim 36:

Gounares et al further teach,

- an adaptive constraint problem solving method (column 11, lines 42-67, "A further type...the target system")

Regarding claim 37:

Gounares et al further teach,

- refining the control parameters (FIG. 10)

Regarding claim 38:

Gounares et al further teach,

- the step of transforming said problem statement (FIG. 4)

Regarding claim 39:

Gounares et al further teach,

- the step of transforming said problem solution (FIG. 8)

Regarding claim 40:

The rejection of claim 35 is incorporated. Therefore, claim 40 is rejected under the same rationale as claim 35.

Regarding claim 41:

Gounares et al further teach,

- the step of transforming said problem configuration parameters (FIG. 4)

Regarding claim 43:

Gounares et al further teach,

- selecting an algorithm for calculating a problem solution (column 4, lines 1-7, "the genetic testing...properties are measured")

Claim Rejections - 35 USC § 103

To expedite a complete examination of the instant application, the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Office presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Office to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 18-21, 30-33, 42 and44 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Gounares et al* (July 11, 2000) in view of

- *Sorrells* U.S. Patent Number 6,144,953 (November 7, 2000) in further view of
- *Schaffer et al* U.S. Patent Number 5,864,833 (January 26, 1999) in further view of
- *Pretz* U.S. Patent Number 6,014,658 (January 11, 2000)

and in further view of *In re Harza*, 274 F.2d 669, 671, 124 USPQ 378, 380 (CCPA 1960).

Regarding claim 18:

Gounares et al's teachings from claim 10 include the following:

- an input device for providing the problem statement (FIG. 25: items 2540, 2542, 2549)

- a computer coupled to the output of said input device (FIG. 25: items 2520, 2521)

- a memory portion coupled to the computer comprising (FIG. 25: item 2522):

- software for receiving the problem statement from said input device (item 2526)

- software for determining solver configuration parameter vectors (item 2535)

- software for configuring a problem solver (item 2536)

- software for determining expected solver behavior (item 2537)

- software for performing a partial search with said configuration parameter vectors (item 2555)

- software for determining actual solver behavior and determining whether a solution has been found (item 2527)

- software for determining whether to perform a solver iteration step or to perform an adaptation step (item 2550)

- software for performing an adaptation step, comprising modifying said configuration parameters and reconfiguring said problem solver (item 2524)

- output means for providing a solution statement (items 2547, 2549)

Gounares et al further teach,

- communication between components of the computer system based on an API developed for embedded modules (column 29, lines 29-48, "FIG. 23 is...product driver management")

Gounares et al, however, don't explicitly teach an embedded computer while *Schaffer et al* teach,

- said control computer comprises an embedded computer (column 5, lines 22-43, "The ACM 78...can be extended")

Motivation – The portions of the claimed computer system would have been a highly desirable feature in this art for:

- flexibility in defining interesting behaviors of problem solutions (*Gounares et al*, column 2, lines 64-67, "The system of...invention learns from"; column 3, lines 1-22, "the results of...the target system"; column 5, lines 1-7, "The software testing...the target system")
- providing optimal or near optimal solutions for machine configuration problems (*Schaffer et al*, column 2, lines 43-65, "An additional object...printed circuit board")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Gounares et al* with *Schaffer et al* to obtain the invention specified in claim 18, a computer system for problem solving. The modification would have been obvious because one of ordinary skill in the art would have been motivated to design flexible and more optimal solutions to complicated problems.

Regarding claim 19:

The rejection of claim 18 is incorporated. Claim 19's further limitations are taught in *Gounares et al*:

- said embedded computer system controls at least one operation within a copier or printer (column 7, lines 35-53, "A number of...speakers and printers")

Therefore, claim 19 is rejected under the same rationale as claim 18.

Regarding claim 20:

Gounares et al's teachings from claim 10 include the following:

- an input device for providing the problem statement (FIG. 25: items 2540, 2542, 2549)
- a computer coupled to the output of said input device (FIG. 25: items 2520, 2521)
- a memory portion coupled to the computer comprising (FIG. 25: item 2522):
- software for receiving the problem statement from said input device (item 2526)
- software for determining solver configuration parameter vectors (item 2535)
- software for configuring a problem solver (item 2536)
- software for determining expected solver behavior (item 2537)
- software for performing a partial search with said configuration parameter vectors (item 2555)
- software for determining actual solver behavior and determining whether a solution has been found (item 2527)
- software for determining whether to perform a solver iteration step or to perform an adaptation step (item 2550)

- software for performing an adaptation step, comprising modifying said configuration parameters and reconfiguring said problem solver (item 2524)

- output means for providing a solution statement (items 2547, 2549)

Gounares et al further teach,

- communication between components of the computer system based on an API developed for embedded modules (column 29, lines 29-48, "FIG. 23 is...product driver management")

Gounares et al, however, don't explicitly teach an embedded computer controlling at least one operation within process control system while *Schaffer et al* teach,

- said control computer comprises an embedded computer (column 5, lines 22-43, "The ACM 78...can be extended")

Sorrells et al teach,

- said embedded computer system controls at least one operation within a process control system (Abstract, "Expert systems often...processing respective nodes")

Motivation – The portions of the claimed computer system would have been highly desirable features in this art for:

- flexibility in defining interesting behaviors of problem solutions (*Gounares et al*, column 2, lines 64-67, "The system of...invention learns from"; column 3, lines 1-22, "the results of...the target system"; column 5, lines 1-7, "The software testing...the target system")

- providing optimal or near optimal solutions for machine configuration problems (*Schaffer et al*, column 2, lines 43-65, "An additional object...printed circuit board")
- improving operation, control and reliability when searching for problem solutions in time constrained environments (*Sorrells et al*, column 4, lines 15-59, "it is an...processing time available")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Gounares et al* with *Schaffer et al* and *Sorrells et al* to obtain the invention specified in claim 20, a computer system for problem solving. The modification would have been obvious because one of ordinary skill in the art would have been motivated to design flexible and more optimal solutions to complicated problems when resources are limited.

Regarding claim 21:

Gounares et al's teachings from claim 10 include the following:

- an input device for providing the problem statement (FIG. 25: items 2540, 2542, 2549)
- a computer coupled to the output of said input device (FIG. 25: items 2520, 2521)
- a memory portion coupled to the computer comprising (FIG. 25: item 2522):
- software for receiving the problem statement from said input device (item 2526)
- software for determining solver configuration parameter vectors (item 2535)
- software for configuring a problem solver (item 2536)
- software for determining expected solver behavior (item 2537)

- software for performing a partial search with said configuration parameter vectors (item 2555)

- software for determining actual solver behavior and determining whether a solution has been found (item 2527)

- software for determining whether to perform a solver iteration step or to perform an adaptation step (item 2550)

- software for performing an adaptation step, comprising modifying said configuration parameters and reconfiguring said problem solver (item 2524)

- output means for providing a solution statement (items 2547, 2549)

Gounares et al further teach,

- communication between components of the computer system based on an API developed for embedded modules (column 29, lines 29-48, "FIG. 23 is...product driver management")

Gounares et al, however, don't explicitly teach an embedded computer controlling at least one operation within a diagnostics unit while *Schaffer et al* teach,

- said control computer comprises an embedded computer (column 5, lines 22-43, "The ACM 78...can be extended")

Sorrells et al teach,

- said embedded computer system controls at least one operation within a diagnostics unit (column 2, lines 50-61, "several Artificial Intelligence...in military applications")

Motivation – The portions of the claimed computer system would have been highly desirable features in this art for:

- flexibility in defining interesting behaviors of problem solutions (*Gounares et al*, column 2, lines 64-67, "The system of...invention learns from"; column 3, lines 1-22, "the results of...the target system"; column 5, lines 1-7, "The software testing...the target system")
- providing optimal or near optimal solutions for machine configuration problems (*Schaffer et al*, column 2, lines 43-65, "An additional object...printed circuit board")
- improving operation, control and reliability when searching for problem solutions in time constrained environments (*Sorrells et al*, column 4, lines 15-59, "it is an...processing time available")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Gounares et al* with *Schaffer et al* and *Sorrells et al* to obtain the invention specified in claim 21, a computer system for problem solving. The modification would have been obvious because one of ordinary skill in the art would have been motivated to design flexible and more optimal solutions to complicated problems when resources are limited.

Regarding claim 30:

Gounares et al's teachings from claim 22 include the following:

- an input device for providing the primary goal for the task to be performed (FIG. 25: items 2540, 2542, 2549)

- a computer coupled to the output of said input device (FIG. 25: item 2520)

- a memory portion coupled to said computer comprising (FIG. 25):

- a complexity module for configuring a problem statement and determining expected solver behavior (FIG. 4)

- a controllable solving module coupled to said complexity module for determining actual solver behavior (FIG. 6)

- a synthesis module for determining configuration parameter vectors (FIG. 8)

- comparison means for comparing said actual solver behavior with said expected solver behavior (items 404, 418, 1003, 1006, 1500, 2108, 2202, 2207, 2521)

- output means for providing a statement of the problem solution (items 2547, 2549)

Gounares et al further teach,

- communication between components of the computer system based on an API developed for embedded modules (column 29, lines 29-48, "FIG. 23 is...product driver management")

Gounares et al, however, don't explicitly teach an embedded computer while *Schaffer et al* teach,

- said control computer comprises an embedded computer (column 5, lines 22-43, "The ACM 78...can be extended")

Motivation – The portions of the claimed computer system would have been a highly desirable feature in this art for:

- flexibility in defining interesting behaviors of problem solutions (*Gounares et al*, column 2, lines 64-67, "The system of...invention learns from"; column 3, lines 1-22, "the results of...the target system"; column 5, lines 1-7, "The software testing...the target system")

- providing optimal or near optimal solutions for machine configuration problems (*Schaffer et al*, column 2, lines 43-65, "An additional object...printed circuit board")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Gounares et al* with *Schaffer et al* to obtain the invention specified in claim 30, the computer system for problem solving. The modification would have been obvious because one of ordinary skill in the art would have been motivated to design flexible and more optimal solutions to complicated problems.

Regarding claim 31:

The rejection of claim 30 is incorporated. Claim 31's further limitations are taught in *Gounares et al*:

- said embedded computer system controls at least one operation within a copier or printer (column 7, lines 35-53, "A number of...speakers and printers")

Therefore, claim 31 is rejected under the same rationale as claim 30.

Regarding claim 32:

Gounares et al's teachings from claim 22 include the following:

- an input device for providing the primary goal for the task to be performed (FIG. 25: items 2540, 2542, 2549)

- a computer coupled to the output of said input device (FIG. 25: item 2520)

- a memory portion coupled to said computer comprising (FIG. 25):

- a complexity module for configuring a problem statement and determining expected solver behavior (FIG. 4)

- a controllable solving module coupled to said complexity module for determining actual solver behavior (FIG. 6)

- a synthesis module for determining configuration parameter vectors (FIG. 8)

- comparison means for comparing said actual solver behavior with said expected solver behavior (items 404, 418, 1003, 1006, 1500, 2108, 2202, 2207, 2521)

- output means for providing a statement of the problem solution (items 2547, 2549)

Gounares et al further teach,

- communication between components of the computer system based on an API developed for embedded modules (column 29, lines 29-48, "FIG. 23 is...product driver management")

Gounares et al, however, don't explicitly teach an embedded computer controlling at least one operation within process control system while *Schaffer et al* teach,

- said control computer comprises an embedded computer (column 5, lines 22-43, "The ACM 78...can be extended")

Sorrells et al teach,

- said embedded computer system controls at least one operation within a process control system (Abstract, "Expert systems often...processing respective nodes")

Motivation – The portions of the claimed computer system would have been highly desirable features in this art for:

- flexibility in defining interesting behaviors of problem solutions (*Gounares et al*, column 2, lines 64-67, "The system of...invention learns from"; column 3, lines 1-22, "the results of...the target system"; column 5, lines 1-7, "The software testing...the target system")
- providing optimal or near optimal solutions for machine configuration problems (*Schaffer et al*, column 2, lines 43-65, "An additional object...printed circuit board")
- improving operation, control and reliability when searching for problem solutions in time constrained environments (*Sorrells et al*, column 4, lines 15-59, "it is an...processing time available")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Gounares et al* with *Schaffer et al* and *Sorrells et al* to obtain the invention specified in claim 32, the computer system for problem solving. The modification would have been obvious because one of ordinary skill in the art would have been motivated to design flexible and more optimal solutions to complicated problems when resources are limited.

Regarding claim 33:

Gounares et al's teachings from claim 22 include the following:

- an input device for providing the primary goal for the task to be performed (FIG. 25: items 2540, 2542, 2549)

- a computer coupled to the output of said input device (FIG. 25: item 2520)

- a memory portion coupled to said computer comprising (FIG. 25):

- a complexity module for configuring a problem statement and determining expected solver behavior (FIG. 4)

- a controllable solving module coupled to said complexity module for determining actual solver behavior (FIG. 6)

- a synthesis module for determining configuration parameter vectors (FIG. 8)

- comparison means for comparing said actual solver behavior with said expected solver behavior (items 404, 418, 1003, 1006, 1500, 2108, 2202, 2207, 2521)

- output means for providing a statement of the problem solution (items 2547, 2549)

Gounares et al further teach,

- communication between components of the computer system based on an API developed for embedded modules (column 29, lines 29-48, "FIG. 23 is...product driver management")

Gounares et al, however, don't explicitly teach an embedded computer controlling at least one operation within a diagnostics unit while *Schaffer et al* teach,

- said control computer comprises an embedded computer (column 5, lines 22-43, "The ACM 78...can be extended")

Sorrells et al teach,

- said embedded computer system controls at least one operation within a diagnostics unit (column 2, lines 50-61, "several Artificial Intelligence...in military applications")

Motivation – The portions of the claimed computer system would have been highly desirable features in this art for:

- flexibility in defining interesting behaviors of problem solutions (*Gounares et al*, column 2, lines 64-67, "The system of...invention learns from"; column 3, lines 1-22, "the results of...the target system"; column 5, lines 1-7, "The software testing...the target system")
- providing optimal or near optimal solutions for machine configuration problems (*Schaffer et al*, column 2, lines 43-65, "An additional object...printed circuit board")
- improving operation, control and reliability when searching for problem solutions in time constrained environments (*Sorrells et al*, column 4, lines 15-59, "it is an...processing time available")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Gounares et al* with *Schaffer et al* and *Sorrells et al* to obtain the invention specified in claim 33, the computer system for problem solving. The modification would have been obvious because one of ordinary skill in the art would have been motivated to design flexible and more optimal solutions to complicated problems when resources are limited.

Regarding claim 42:

Gounares et al's teachings from claim 35 include the following:

- receiving a problem statement (FIGS. 1, 25; column 2, lines 54-60, "The above identified...population of organisms")

- configuring a problem solver with configuration parameters (column 5, lines 1-7, "The software testing...the target system"; column 12, lines 58-60, "The system

of...application of mutagens"; column 25, lines 46-64, "The operation of...system for operation"; column 26, lines 5-28, "genetic testing engine...system under test")

- determining a set of configuration parameter vectors (column 8, lines 17-35, "The present invention...by product drivers"; column 18, lines 26-45, "Step 1005 and...to step 1007")

- determining expected solver behavior associated with said configuration parameters for said problem statement (column 2, lines 62-67, "the population of...by the user")

- searching for a solution with said configuration parameter vectors (column 18, lines 26-45, "Step 1005 and...to step 1007")

- determining actual solver behavior (column 23, lines 55-60, "the software testing...target software system")

- determining if a problem solution has been found (FIG. 22)

- determining whether to perform a solving iteration step or an adaptation step if a problem solution has not been found (FIGS. 10, 21)

- performing said solver iteration step, when said solver iteration step is selected, comprising the steps of determining a new actual solver behavior and determining whether to repeat said iteration step (FIG. 4; column 4, lines 18-30, "Pairs of chromosomes...of test cases")

- repeating said solver iteration step until said adaptation step is selected (column 14, lines 33-51, "FIG. 22 illustrates...to step 2208")

- comparing said actual solver behavior with said expected solver behavior when said adaptation step is selected (column 11, lines 8-24, "Whenever a chromosome ... additional notational conveniences")

- performing said adaptation step, comprising the steps of modifying said configuration parameters, determining expected solver behavior associated with said modified configuration parameters, determining a revised actual solver behavior, reviewing said revised actual solver behavior to determine if a problem solution has been found, determining whether to perform said solver iteration step or to perform another adaptation step if a problem solution has not been found, and repeating said iteration step until said adaptation step is selected (FIG. 6, 8, 15)

- repeating said adaptation step until a problem solution is found (column 20, lines 1-20, "A process of...to step 2105")

- transmitting a solution statement (FIGS. 23, 25: items 2553, 2554, 2548)

Gounares et al further teach,

- selecting an initial minimum point (column 10, TABLE 3, Before a_1)

- performing a local search (column 4, lines 1-17, "In general, the...high fitness rating")

- evaluating actual behavior to determine whether to repeat a local search or select a different solver algorithm (FIG. 22)

repeating a local search with a second minimum point when the step of repeating a local search is selected (column 20, lines 1-20, "A process of...to step 2105")

revising the set of configuration parameter vectors for each search performed (column 4, lines 18-30, "Pairs of chromosomes...or test cases")

Gounares et al, however, don't explicitly teach choosing a set of default configuration parameter vectors while *Sorrells et al* teach,

- choosing a set of default configuration parameter vectors (column 8, lines 64-67, "In the absence...possible values, repre-"; column 9, lines 1-29, "senting true or...0 to –1")

Motivation – The portions of the claimed problem solving method would have been a highly desirable feature in this art for:

- flexibility in defining interesting behaviors of problem solutions (*Gounares et al*, column 2, lines 64-67, "The system of...invention learns from"; column 3, lines 1-22, "the results of...the target system"; column 5, lines 1-7, "The software testing...the target system")
- improving operation, control and reliability when searching for problem solutions in time constrained environments (*Sorrells et al*, column 4, lines 15-59, "it is an...processing time available")

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Gounares et al* with *Sorrells et al* to obtain the invention specified in claim 42, the adaptive constraint problem solving method. The modification would have been obvious because one of ordinary skill in the art would have been motivated to design flexible solutions to complicated problems when resources are limited.

Regarding claim 44:

Gounares et al further teach,

- the use of local and remote memory as storage media for program/application modules and archiving program/application data (column 6, lines 44-67, "FIG. 25 and...2521, a system"; column 7, lines 1-67, "memory 2522, and...and the Internet"; column 8, lines 1-26, "When used in...a test case"; FIG. 1, item 111; column 13, lines 23-29, "Chromosomes that produce...to step 422"; column 20, lines 42-52, "Sequence 1902 of...for Parent B"; column 25, lines 51-64, "The available product...system for operation")

- possibly binary values for representing program/application data (FIGS. 2-3, 5, 7, 9, 11-14, 16-20)

- range and length of possibly binary data as an indication of format that influences program behavior (column 17, lines 64-67, "Step 1002 and...Processing step 1002"; column 18, lines 1-15, "operates to find...to step 1004"; column 18, lines 26-45, "Step 1005 and...to step 1007")

- means for receiving a problem statement (FIG. 25: item 2540)

- means for determining expected solver behavior associated with said problem statement (FIG. 25: item 2520)

- means for providing configuration parameters for a plurality of problems (FIG. 25: item 2549)

- means for determining a set of configuration parameter vectors (FIG. 25: item 2542)

- means for performing a partial search with said configuration parameter vectors (column 18, lines 26-45, "Step 1005 and...to step 1007"; FIG. 9)

- means for calculating actual solver behavior (column 23, lines 55-60, "the software testing...target software system"; FIG. 4)

- means for reviewing said actual solver behavior to determine if a problem solution has been found (FIGS. 15, 22)

- means for determining whether to perform a solver iteration step or to request an adaptation step if a problem solution has not been found (FIGS. 10, 21)

- means for performing a solver iteration step, comprising performing another search step, calculating a revised actual solver behavior and determining whether to repeat said solver iteration step (column 4, lines 18-30, "Pairs of chromosomes...of test cases")

- means for comparing said actual solver behavior with said expected solver behavior (column 11, lines 8-24, "Whenever a chromosome...additional notational conveniences")

- means for requesting performance of an adaptation step (column 2, lines 13-51, "Given that there...target software systems"; column 22, lines 20-48, "These four actions...complex test cases")

- means for performing an adaptation step, comprising modifying said configuration parameters, determining a revised expected problem solver behavior, and providing said modified configuration parameters and said revised expected problem solver behavior to said means for performing a solver iteration step (FIG. 6, 8, 15)

- means for providing the problem solution to an output device (items 2547, 2549)

Gounares et al, however, do not explicitly teach the twelve pluralities of binary values or three data formats of this claim:

- a first plurality, of binary values for receiving a problem statement transmission and storing the problem statement in a first data format

- a second plurality of binary values for transforming the first data format to a second data format

- a third plurality of binary values for determining expected solver behavior associated with said second data format

- a fourth plurality of binary values for selecting a set of configuration parameter vectors;

- a fifth plurality of binary values for performing a partial search

- a sixth plurality of binary values for determining actual solver behavior associated with said second data format

- a seventh plurality of binary values for determining if a problem solution has been found

- an eighth plurality of binary values for determining whether to perform a solver iteration step or perform an adaptation step if a problem solution has not been found

- a ninth plurality of binary values for comparing said expected solver behavior and said actual solver behavior

- a tenth plurality of binary values for performing a solver iteration step

- an eleventh plurality of binary values for performing a solver adaptation step

- a twelfth plurality of binary values for transmitting a solution statement in a third data format

On the other hand, *Pretz* teaches,

- accessing first and second/remote stores in managing solutions to problems (Abstract, "The invention, in...the first store"; FIG. 3A-3B)

- binary formats as common representations of concepts and data transformed and/or transmitted in computer systems and related devices (FIG. 1; column 3, lines 47-63, "Some portions of...or the like"; column 7, lines 45-58, "The technical service...or data specific"; column 10, lines 34-45, "the e-mail message...customer are compatible")

Motivation – The portions of the claimed problem solver, twelve pluralities of binary values and three data formats, would have been highly desirable features in this art for:

- flexibility in defining interesting behaviors of problem solutions (*Gounares et al*, column 2, lines 64-67, "The system of...invention learns from"; column 3, lines 1-22, "the results of...the target system"; column 5, lines 1-7, "The software testing...the target system")
- efficiently automating complex problem/solution tracking and searching (*Pretz*, column 1, lines 5-67, "The present invention...set forth above")
- duplicating parts for multiple effect - *In re Harza*, 274 F.2d 669, 671, 124 USPQ 378, 380 (CCPA 1960)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine *Gounares et al* with *Pretz* to obtain the invention specified in claim 44, a problem solver stored via storage media, and duplicate effects

considered to be within the level of ordinary skill in the art. The modification would have been obvious because one of ordinary skill in the art would have been motivated to efficiently and flexibly automate the solving, tracking and searching of complicated problems.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- *Gounares et al*; U.S. Patent Number 6,088,690
- *Sorrells et al*; U.S. Patent Number 6,144,953
- *Trif et al*; U.S. Patent Number 5,870,731
- *Schaffer et al;* U.S. Patent Number 5,864,833
- *Pretz;* U.S. Patent Number 6,014,658
- *Burt;* U.S. Patent Number 4,829,426; Computer-Implemented Expert System and Method for Decision-Making
- *Kimbel et al;* U.S. Patent Number 5,517,654; System for Parallel Implementation of Combinatorial Optimization in a Multiprocessor Network for Generating Search Graphs for Solving Enumerative Problems
- *Kurtzberg et al;* U.S. Patent Number 6,219,066; Method and System for Graphical Display of Probability Relationships
- *Oon;* U.S. Patent Number 6,226,620; Iterative Problem Solving Technique

- *Kanevsky;* U.S. Patent Number 6,044,344; Constrained Corrective Training for Continuous Parameter System

- *Pfawcett et al;* U.S. Patent Number 5,678,002; System and Method for Providing Automated Customer Support

- *Fromherz et al;* U.S. Patent Application Publication Number 2002/0184176

- *Sprotte et al*; U.S. Patent Number 5,871,731; Oral Administration of Immunoglobulin Preparations for Treatment of Chronic Pain Syndrome

- *Garmonev et al;* U.S. Patent Application Publication Number 2003/0100344; Method and Device of Antenna Pattern Forming

- *Crawford, Jr. et al;* U.S. Patent Number 6,233,572; Computer Implemented System and Method for High Level Controlled Searching Through a Problem Space

- *Crawford, Jr. et al;* PCT International Publication Number WO 99/62018 A1; Computer Implemented System and Method for High Level Controlled Searching Through a Problem Space

- *In re Harza*, 274 F.2d 669, 671, 124 USPQ 378, 380 (CCPA 1960); Duplicating parts for multiple effect

- *Minton et al*; "Using Machine Learning to Synthesize Search Programs"; Ninth Knowledge Based Software Engineering Conference Proceedings; 20-23 September 1994; pp 31-38

- *Lau et al*; "Solving large Processor Configuration Problems with the Guided Genetic Algorithm"; Tenth IEEE International Conference on Tools with Artificial Intelligence Proceedings; 10-12 November 1998; pp 320-327

- *Lau et al*; "The Guided Genetic Algorithm and its application to the Generalized Assignment Problem"; Tenth IEEE International Conference on Tools with Artificial Intelligence Proceedings; 10-12 November 1998; pp 336-343

- *Lau et al*; "Applying a Mutation-Based Genetic Algorithm to Processor Configuration Problems"; Proceedings Eighth IEEE International Conference on Tools with Artificial Intelligence; 16-19 November 1996; pp 17-24

- *Wang et al*; "Solving Constraint Satisfaction Problems Using Neural Networks"; Second International Conference on Artificial Neural Networks; 18-20 November 1991; pp 295-299

- *Jackson et al*; "A Hybrid Hierarchical Control Architecture for Paper Transport Systems"; Proceedings of the 37th IEEE Conference on Decision and Control; Vol. 4; 16-18 December 1998; pp 4294-4295

Any inquiry concerning this communication or earlier communications from the Office should be directed to Meltin Bell whose telephone number is 703-305-0362. This Examiner can normally be reached on Mon - Fri 7:30 am - 4:30 pm.

If attempts to reach this Examiner by telephone are unsuccessful, his supervisor, Anil Khatri, can be reached on 703-305-0282. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

MB /M.A.

ANIL KHATRI
SUPERVISORY PATENT EXAMINER